

REMARKS

Entry of the foregoing and reconsideration of the application identified in caption, as amended, pursuant to and consistent with 37 C.F.R. §1.111 and in light of the remarks which follow, are respectfully requested.

By the above amendments, claims 15 and 16 have been canceled without prejudice or disclaimer. Claim 11 has been amended to incorporate the subject matter of now canceled claims 15 and 16. Claim 12 has been amended for readability purposes to include a space between "zirconium" and "oxides." Claims 13 and 14 have been amended for readability purposes by correcting the spelling of the word "performed." Claim 17 has been amended to depend from claim 11 in light of the cancellation of claim 16. Claim 21 has been amended for readability purposes by deleting the word "one."

In the Official Action, claims 11-27 stand rejected under 35 U.S.C. §103(a) as being obvious over any of Applied Catalysis, A: General (1995), 133(2), pp. 367-76 (hereinafter "*Applied Catalysis*"); an abstract of WO 2000027526 (hereinafter "*WO '526*"); or an abstract of WO 2000027525 (hereinafter "*WO '525*"). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Independent claim 11 is directed to a process for the purification of aliphatic diamines, comprising the step of a) carrying out an hydrogenation treatment on the diamine in a medium in the presence of a catalyst comprising platinum, palladium, ruthenium, rhodium, iridium, nickel or cobalt, wherein the medium is a reaction medium resulting from the synthesis of the diamine by hydrogenation of a dinitrile compound, and b) recovering of the purified diamine.

Applied Catalysis relates to the catalytic hydrogenation of adiponitrile into hexamethylenediamine. *WO '526* and *WO '525* relate to the use of a catalyst for hydrogenation of adiponitrile to 6-aminocapronitrile and hexamethylenediamine.

Applied Catalysis, *WO '526* and *WO '525* do not disclose or suggest each feature recited in independent claim 11. Claim 11 specifies that the hydrogenation treatment is carried out on the diamine in a medium for the purpose of purifying such diamine. In stark contrast, each of the above applied documents is concerned with a process for the synthesis of hexamethylenediamine. The applied documents have no recognition or suggestion of a process for purifying the hexamethylenediamine obtained from the synthesis process.

The above differences are further highlighted in view of the above amendments, in which claim 11 has been amended to recite that the hydrogenation treatment is carried out on the diamine in a medium which is a reaction medium resulting from the synthesis of the diamine by hydrogenation of a dinitrile compound. That is, the diamine present in a reaction medium which results from a hydrogenation process, is further subjected to a hydrogenation treatment for purposes of purifying the diamine. In stark contrast, the above applied documents merely relate to the synthesis of hexamethylenediamine and have no mention or suggestion of the purification of the hexamethylenediamine product, let alone by a hydrogenation treatment.

For at least the above reasons, it is apparent that the above applied art fails to render the claims *prima facie* obvious. Accordingly, withdrawal of the above §103(a) rejection is respectfully requested.

Claims 11-27 stand rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 3,523,973 (*Evans*) in view of U.S. Patent No. 4,766,247 (*Ford et al*), U.S. Patent

No. 5,362,914 (*Su '914*) and U.S. Patent No. 5,364,971 (*Su '971*). Withdrawal of this rejection is respectfully requested for at least the following reasons.

Evans relates to a process for the preparation of alkylenediamine by hydrogenation. Col. 1, lines 47-55. *Evans* discloses that impurities such as bishexamethylene triamine are formed during hydrogenation, and that such impurities are subsequently removed from the product by distillation. Col. 2, lines 23-29. Specifically, *Evans* discloses that bishexamethylene triamine is removed from crude hexamethylene diamine and subjected to adiponitrile hydrogenation conditions whereby a portion thereof is converted to additional hexamethylene diamine. Col. 2, lines 30-34.

Evans does not disclose or suggest each feature recited in independent claim 11. For example, *Evans* does not disclose or suggest carrying out an hydrogenation treatment on the diamine in a medium, wherein the medium is a reaction medium resulting from the synthesis of the diamine by hydrogenation of a dinitrile compound.

In the claimed process, at the time of the recited hydrogenation treatment, the diamine is in a reaction medium resulting from the synthesis of the diamine. By comparison, *Evans* discloses that the bishexamethylene triamine is removed from the crude hexamethylene diamine by distillation, prior to subjecting the bishexamethylene triamine to adiponitrile hydrogenation. The bishexamethylene triamine of *Evans* is not present with the crude hexamethylene diamine, but rather is removed from the hexamethylene diamine prior to carrying out the adiponitrile hydrogenation process. In view of such teaching, it is clear that *Evans* fails to disclose or suggest carrying out an hydrogenation treatment on the diamine in a reaction medium resulting from the synthesis of the diamine by hydrogenation of a dinitrile compound, as is presently claimed.

The secondary applied documents (i.e., *Ford et al*, *Su '914* and *Su '971*) fail to cure the above-described deficiencies of *Evans*. In this regard, the Patent Office has relied on such documents for disclosing that polyethylene polyamines or polyalkylene polyamines may have their color reduced by mild hydrogenation in the presence of a catalyst. Official Action at page 5. However, like *Evans*, the secondary applied documents fail to disclose or suggest carrying out an hydrogenation treatment on the diamine in a medium, wherein the medium is a reaction medium resulting from the synthesis of the diamine by a hydrogenation of a dinitrile compound, as recited in claim 11. By comparison, the secondary applied documents do not even relate to the synthesis of a diamine by a hydrogenation of a dinitrile compound, let alone that an hydrogenation treatment is carried out on a diamine in a reaction medium resulting from such synthesis process, as is presently claimed.

For at least the above reasons, it is apparent that no *prima facie* case of obviousness exists. Accordingly, withdrawal of the above §103(a) rejection is respectfully requested.

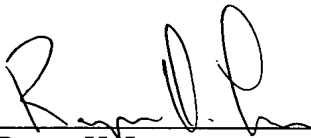
From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such action is earnestly solicited. If there are any questions concerning this paper or the application in general, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

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By:



Roger H. Lee
Registration No. 46317

P.O. Box 1404
Alexandria, VA 22313-1404
703 836 6620